AMENDMENTS TO THE CLAIMS

Claims 1-10 (withdrawn)

Claim 11 (currently amended): A method for targeting a heritable integration of a transgene within a genome of a somatic or germ line cell of an invertebrate organism, said method comprising:

integrating a first DNA cassette within said genome by transposase-mediated integration of flanking transposon half sides, wherein said first cassette comprises a wild-type/non-mutated or a mutated target site of a site-specific recombinase at one end and a mutated target site of said site-specific recombinase at an other end, wherein said recombinase target sites are heterospecific, and wherein said target sites flank marker gene DNA and flank additional DNA sequence, and

exchanging said first DNA cassette for a second DNA cassette by a site-specific recombinase enzyme that catalyzes a DNA recombination reaction via homospecific recombinase target sites, wherein the second DNA cassette comprises heterospecific site-specific recombinase target sites and internal transposon half side, wherein said target sites flank additional DNA sequence.

Claim12 (previously presented): The method of claim 11, wherein said site-specific recombinase is FLP recombinase, and wherein said recombinase target sites are FRT sites or mutated derivatives of said FRT sites.

Claim 13 (previously presented): The method of claim 11, wherein said site-specific recombinase is Cre recombinase, and wherein said recombinase target sites are loxP sites or mutated derivatives of said loxP sites.

Claim 14 (currently amended): The method of claim 11, wherein one of the target sites of said first cassette is a ~~comprises one~~ site-specific recombinase target site placed in-between a marker gene coding region and a promoter DNA that regulates its expression.

Claim 15 (previously presented): The method of claim 11, wherein said first cassette comprises a homing sequence to enhance pairing to said site-specific recombinase target sites in said second cassette.

Claim 16 (previously presented): The method of claim 11, wherein said homing sequence comprises a DNA sequence hybridizing to a Drosophila linotte locus.

Claim 17 (currently amended): ~~The method of claim 11, wherein said second cassette comprises said heterospecific site-specific recombinase target sites.~~ The method of claim 11, wherein the additional DNA sequence of the second cassette comprises the target nucleotide sequence of said transgene.

Claim 18 (currently amended): The method of claim 11 ~~17~~, wherein said second cassette comprises a marker gene coding region lacking a promoter for regulating its expression, and

wherein, following the exchange of said first DNA cassette to said second cassette, said marker gene is placed under the control of said promoter derived from said first cassette.

Claim 19 (currently amended): The method of claim 15 ~~17~~, wherein said second cassette comprises the same homing sequence as said first cassette within said recombinase target sites.

Claim 20 (currently amended): The method of claim 11 ~~17~~, wherein said ~~second cassette has a~~ transposon half side in-between said recombinase target sites with phenotypically distinguishable marker genes on either side, wherein one of said marker genes lacks a promoter.

Claim 21 (currently amended): The method of claim 11 ~~17~~, wherein the first cassette further comprises an operable promoter, wherein site-specific recombinase mediated insertion occurs between a coding region of said second cassette and an operable promoter of a selectable marker gene of said first cassette.

Claim 22 (previously presented): The method of claim 20, wherein said internal transposon half side is excisable with a flanking transposon half side, and wherein said excisable transposon is mobilized by a source of transposase corresponding to said excisable transposon to render the remaining genomic DNA immobilizable.

Claim 23 (withdrawn)

Claim 24 (previously presented): An invertebrate organism comprising the heritable transgene produced according to claim 11.

Claims 25-34 (withdrawn)

Claim 35 (currently amended): A method for targeting a heritable integration of a transgene within a genome of a somatic or germ line cell of an organism, said method comprising:

integrating a first DNA cassette within said genome by transposase-mediated integration of flanking transposon half sides, wherein said first cassette comprises a wild-type/non-mutated or a mutated target site of a site-specific recombinase at one end and a mutated target site of said site-specific recombinase at an other end, wherein said recombinase target sites are heterospecific, and wherein said target sites flank marker gene DNA and flank additional DNA sequence, and

exchanging said first DNA cassette for a second DNA cassette by a site-specific recombinase enzyme that catalyzes a DNA recombination reaction via a homospecific recombinase target site, wherein the second DNA cassette comprises heterospecific site-specific recombinase target sites and internal transposon half side, wherein said target sites flank additional DNA sequence.

Claim 36 (previously presented): The method of claim 35, wherein said site-specific recombinase is FLP recombinase, and wherein said recombinase target sites are FRT sites or mutated derivatives of said FRT sites.

Claim 37 (currently amended): The method of claim 35 ~~39~~, wherein said site-specific recombinase is Cre recombinase, and wherein said recombinase target sites are loxP sites or mutated derivatives of said loxP sites.

Claim 38 (currently amended): The method of claim 35, wherein one of the target sites of said first cassette is a ~~comprises one~~ site-specific recombinase target site placed in-between a marker gene coding region and a promoter DNA that regulates its expression.

Claim 39 (previously presented): The method of claim 35, wherein said first cassette comprises a homing sequence to enhance pairing to said site-specific recombinase target sites in said second cassette.

Claim 40 (previously presented): The method of claim 35, wherein said homing sequence comprises a DNA sequence hybridizing to a Drosophila linotte locus.

Claim 41 (currently amended): ~~The method of claim 35, wherein said second cassette comprises said heterospecific site-specific recombinase target sites.~~ The method of claim 35, wherein the additional DNA sequence of the second cassette comprises the target nucleotide sequence of said transgene.

wherein, following the exchange of said first DNA cassette to said second cassette, said marker gene is placed under the control of said promoter derived from said first cassette.

Claim 43 (currently amended): The method of claim 39 ~~41~~, wherein said second cassette comprises the same homing sequence as said first cassette within said recombinase target sites.

Claim 44 (currently amended): The method of claim 35 ~~41~~, wherein said ~~second cassette has a~~ transposon half side in-between said recombinase target sites with phenotypically distinguishable marker genes on either side, wherein one of said marker genes lacks a promoter.

Claim 45 (currently amended): The method of claim 35 ~~41~~, wherein the first cassette further comprises an operable promoter, wherein site-specific recombinase mediated insertion occurs between a coding region of said second cassette and an operable promoter of a selectable marker gene of said first cassette.

Claim 46 (previously presented): The method of claim 44, wherein said internal transposon half side is excisable with a flanking transposon half side, and wherein said excisable transposon is mobilized by a source of transposase corresponding to said excisable transposon to render the remaining genomic DNA immobilizable.

Claim 47. (withdrawn)

Claim 48 (previously presented): An organism comprising the heritable transgene produced according to claim 35.